Federal Aviation Administration

Supplemental Environmental Assessment to the U.S. Air Force February 1995 Environmental Assessment for the California Spaceport

August 2011

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Supplemental Environmental Assessment to the February 1995 U.S. Air Force Environmental Assessment for the California Spaceport

AGENCY: Federal Aviation Administration (FAA), lead agency and United States Air Force, cooperating agency

ABSTRACT: This Supplemental Environmental Assessment (SEA) to the U.S. Air Force February 1995 *Environmental Assessment for the California Spaceport* (the 1995 EA) addresses the potential environmental impacts of the Proposed Action where the FAA would renew the Launch Site Operator License (LSO 01-005) to Spaceport Systems International (SSI) for the continued operation of the California Spaceport at Vandenberg Air Force Base (VAFB), California. The 1995 EA analyzed the potential environmental impacts of construction and operation of a commercial launch facility (which is now the California Spaceport) at VAFB, California. On May 2, 1995, the FAA published a Finding of No Significant Impact (FONSI) that adopted the 1995 EA in the *Federal Register*. In September 1996 the FAA issued a Launch Site Operator License to SSI for operation of the California Spaceport at VAFB. This SEA summarizes the environmental analysis presented in the 1995 EA where the data and analysis remains substantially valid and provides new data and analysis where information presented in the 1995 EA is outdated.

This SEA analyzes the potential environmental impacts of the Proposed Action and the No Action Alternative on air quality; biological resources (fish, wildlife, and plants); land use (including coastal resources); light emissions and visual resources; historical, architectural, archaeological, and cultural resources; Department of Transportation Act Section 4(f) properties; geology and soils; hazardous materials, pollution prevention, and solid waste; health and safety; noise; socioeconomics, environmental justice, children's environmental health and safety; and water resources (including floodplains and wetlands). Potential cumulative impacts of the Proposed Action are also addressed in this SEA. This SEA found that there would be no significant impacts to any of the resource areas analyzed as a result of renewing the Launch Site Operator License to SSI for the continued operation of the California Spaceport at VAFB, California. A FONSI has been included in this SEA.

CONTACT INFORMATION: Questions regarding this SEA or FONSI can be addressed to Mr. Daniel Czelusniak, Environmental Program Lead, Federal Aviation Administration, 800 Independence Ave., SW, Room 325, Washington, DC 20591; e-mail Daniel.Czelusniak@faa.gov; or phone (202) 267-5924.

This SEA becomes a Federal document when evaluated and signed and dated by the responsible FAA official.

Issued in Washington, DC on: 9/6/11

Dr. George C. Nield
Associate Administrator for
Commercial Space Transportation

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Office of Commercial Space Transportation; Finding of No Significant Impact

AGENCY: Federal Aviation Administration (FAA), lead agency and United States Air Force (USAF), cooperating agency

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: The FAA, in cooperation with the USAF, prepared a Supplemental Environmental Assessment (SEA) to the February 1995 *Environmental Assessment for the California Spaceport* (1995 EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (U.S.C.) § 4321-4347 (as amended), Council on Environmental Quality (CEQ) NEPA implementing regulations (40 Code of Federal Regulations [CFR Parts 1500 to 1508]), and FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, to evaluate the potential environmental impacts of renewing the Launch Site Operator License (LSO 01-005) to Spaceport Systems International (SSI) for the continued operation of the California Spaceport at Vandenberg Air Force Base (VAFB), California.

After reviewing and analyzing currently available data and information on existing conditions and the potential impacts of the Proposed Action, the FAA has determined that renewing the Launch Site Operator License to SSI for the continued operation of the California Spaceport at VAFB would not significantly impact the quality of the human environment. Therefore, preparation of an Environmental Impact Statement is not required, and the FAA is issuing this FONSI. The FAA made this determination in accordance with all applicable environmental laws. The SEA is incorporated by reference in this FONSI.

FOR A COPY OF THE SEA OR FONSI: Visit the following internet address: http://www.faa.gov/about/office_org/headquarters_offices/ast/environmental/review/operator/ or contact Mr. Daniel Czelusniak, Environmental Program Lead, Federal Aviation Administration, 800 Independence Ave., SW, Room 325, Washington, DC 20591; e-mail Daniel.Czelusniak@faa.gov; or phone (202) 267-5924.

PURPOSE AND NEED: The purpose of the FAA's Proposed Action in renewing the Launch Site Operator License is to fulfill the FAA Office of Commercial Space Transportation's responsibility, under the Commercial Space Launch Act, 51 U.S.C. Ch. 509, §§ 50901-23 (2011) and Executive Order 12465, for oversight of commercial space launch activities, including licensing of launch sites. The need for the action results from the statutory direction from Congress to encourage, facilitate, and promote commercial space launches and reentries by the

private sector and facilitate the strengthening and expansion of the U.S. space transportation infrastructure, in accordance with the applicable requirements.[1]

PROPOSED ACTION: Under the Proposed Action, the FAA would renew the Launch Site Operator License (LSO 01-005) to SSI for the continued operation of the California Spaceport at VAFB. The Launch Site Operator License, which would be valid for 5 years, would authorize SSI to continue to offer launch operators the ability to conduct launches of a variety of vertically-launched launch vehicles (Minuteman and Castor 120 derivative boosters) at the California Spaceport over the 5-year term of the license. The largest launch vehicle proposed to launch from the California Spaceport under the Proposed Action is the Athena III, consisting of a two-stage Castor 120 solid-propellant rocket motor with the addition of up to six Castor IVA or Castor IVXL rocket motors strapped to the first stage. Since SSI was issued its first Launch Site Operator License in 1996, SSI has supported eight commercial launches. Although the terms of the license do not specify the number of launches allowed, FAA selected a conservative value of up to 15 launches per year has been considered for the purposes of this environmental analysis. The proposed activities at the California Spaceport remain consistent with those analyzed in the 1995 EA and are incorporated by reference in the SEA.

In summary, the 1995 EA analyzed the potential environmental impacts of construction and operation of a commercial launch facility (which is now the California Spaceport) at VAFB, California. The analysis considered operation of variety of unmanned vertical launch vehicles: Aquila, Orbex, Athena III, Minuteman, Taurus, PA-2, Conestoga, and Eagle. The 1995 EA assumed a maximum of 24 launches per year of the Athena III, the largest launch vehicle proposed to operate from the California Spaceport, as an upper bound for potential environmental impacts of launch operations for the 5-year period of the Launch Site Operator License.

The SEA summarizes the data and environmental analysis presented in the 1995 EA where the data and analysis remains substantially valid. In addition, the SEA provides new data and analysis where information presented in the 1995 EA is outdated. Since the maximum number of launches analyzed in this SEA is less than the maximum number analyzed in the 1995 EA, the potential environmental impacts would occur less often over the course of the year. The SEA assumes that all launches would be conducted using existing infrastructure and there would be no new construction. Minor modifications to the Mobile Access Tower have been made since the last license renewal. These changes include new platforms and a gantry height extension; new door and stairs at Level 3; side extensions and Clean Room at Level 5 to support Fairing Operations; Heating, Ventilation, and Air Conditioning to provide Class 100,000 air to the Clean Room; conditioned air to all levels; and support to Electrical Ground Support Equipment Contingency Power and Hoist. These minor modifications are included in a category of actions for which an EA or environmental impact statement was not required because they would not individually or cumulatively have a significant effect on the human environment (see paragraph 310 of FAA Order 1050.1E).

[1] The Commercial Space Launch Act, 51 U.S.C. Ch. 509, §§ 50901-23 (2011), the Commercial Space Transportation Competitiveness Act of 2000 (Public Law 106-405); Executive Order 12465, Coordination and Encouragement of Commercial Expendable Launch Vehicle Activities (February 24, 1984); CFR Title 14, Aeronautics and Space, Parts 400-450, Commercial Space Transportation, Federal Aviation Administration, Department of Transportation; the Commercial Space Act of 1998 (Public Law 105-303); the U.S. Space Transportation Policy of 2004; and the National Space Policy of 2010.

ALTERNATIVES CONSIDERED: Alternatives analyzed in the SEA include the Proposed Action and the No Action Alternative. Under the No Action Alternative, the FAA would not renew the Launch Site Operator License to SSI for continued operation of the California Spaceport at VAFB. Existing USAF activities would continue at VAFB.

ENVIRONMENTAL IMPACTS: Based on the SEA, no significant environmental impacts, as defined in FAA Order 1050.1E, would be expected to result from the Proposed Action. Please refer to Chapter 5, Environmental Consequences, of the SEA for a full discussion of potential environmental impacts.

DETERMINATION: An analysis of the Proposed Action has concluded that there would be no significant short-term, long-term, or cumulative effects to the environment or surrounding populations. Therefore, an Environmental Impact Statement for the Proposed Action is not required. After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of NEPA and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(c) of NEPA.

Issued in Washington, DC on: 9/6/11

Dr. George C. Nield
Associate Administrator for
Commercial Space Transportation

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LIST OF EXHIBITS

Exhibit

ACRONYMS AND ABBREVIATIONS

CAAQS	California Ambient Air Quality Standards
CFR	Code of Federal Regulations
CEQ	Council on Environmental Quality
CO	Carbon Monoxide
dBA	A-weighted Sound Level
EA	Environmental Assessment
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA/AST	Federal Aviation Administration Office of Commercial Space Transportation
FONSI	Finding of No Significant Impact
HCl	Hydrogen Chloride
INRMP	Integrated Natural Resources Management Plan
LOA	Letter of Authorization
LSO	Launch Site Operator License
MMPA	Marine Mammal Protection Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
O_3	Ozone
PEIS	Programmatic Environmental Impact Statement
$PM_{2.5}$	Particulate Matter 2.5 microns or less in diameter
PM_{10}	Particulate Matter 10 microns or less in diameter
ppm	Parts per Million
ROD	Record of Decision
SEA	Supplemental Environmental Assessment
SLC	Space Launch Complex
SO_2	Sulfur Dioxide
SSI	Spaceport Systems International
USAF	United States Air Force

U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
VAFB	Vandenberg Air Force Base
$\mu g/m^3$	Microgram per Cubic Meter

1. INTRODUCTION AND BACKGROUND

1.1 Introduction

In September 1996, the Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST) issued a Launch Site Operator License (LSO 01-005) to Spaceport Systems International (SSI) to operate the California Spaceport at Vandenberg Air Force Base (VAFB), California. The license was renewed in 2001 and 2006, and expires on September 18, 2011. The FAA proposes to renew the Launch Site Operator License to SSI for the continued operation of the California Spaceport at VAFB, California.

Renewal of a Launch Site Operator License is a major Federal action subject to environmental review under the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (U.S.C.) § 4231-4347 (as amended). The FAA prepared this Supplemental Environmental Assessment (SEA) in accordance with NEPA, Council on Environmental Quality (CEQ) NEPA implementing regulations (40 Code of Federal Regulations [CFR Parts 1500 to 1508]), and FAA Order 1050.1E, Change 1, *Environmental Impacts: Policies and Procedures*, to evaluate the potential environmental impacts of activities associated with renewing the Launch Site Operator License to SSI for continued operation of the California Spaceport at VAFB.

As part of the environmental review for the initial license application in 1996, the FAA issued a Finding of No Significant Impact (FONSI) that adopted the U.S. Air Force's (USAF) 1995 *Final Environmental Assessment for the California Spaceport* (USAF 1995; hereafter referred to as the 1995 EA). The FAA published the FONSI for the 1995 EA in the *Federal Register* on May 2, 1995 and subsequently issued a Launch Site Operator License to SSI for operation of the California Spaceport at VAFB in September 1996.

The 1995 EA analyzed the potential environmental impacts of operating the California Spaceport as a commercial space launch site. The FAA determined that issuing a Launch Site Operator License to SSI for the operation of the California Spaceport would not significantly affect the quality of the human environment pursuant to Section 102 (2)(c) of NEPA (42 U.S.C. 4321, et seq.). This SEA summarizes the data and environmental analysis presented in the 1995 EA where the data and analysis remains substantially valid. In addition, this SEA provides new data and analysis where information presented in the 1995 EA is outdated.

1.2 Background

VAFB has a long history of use for U.S. military operations. Founded in 1941 as an Army training center for World War II armored and infantry forces, the base, originally called Camp Cooke, housed a variety of anti-aircraft artillery, ordnance, and hospital units. Camp Cooke closed in 1953 and lay dormant until 1956 when the USAF procured the property for use as a missile launch and training base. The first successful launch took place at VAFB in December of 1958. Since the late 1950s, VAFB has grown to become the third largest USAF installation in the United States, with the principal mission of conducting and supporting space and missile launches. The base supports a population of nearly 18,000 individuals, including military personnel and family members, civilian personnel, and contractors (USAF 2011a; USAF 2011b).

In 1993, the Western Commercial Space Center, a non-profit organization designated by the State of California as the California Spaceport Authority, began to pursue development of a commercial spaceport at VAFB. The USAF analyzed the potential environmental impacts

associated with establishing such a facility at VAFB in the 1995 EA, which included an analysis of the potential environmental impacts associated with construction of the California Spaceport and operation of a variety of launch vehicles proposed to be launched from the site. In September 1996, the FAA issued Launch Site Operator License LSO 01-005 to the Western Commercial Space Center for operation of the California Spaceport at VAFB. This license was subsequently transferred to the for-profit SSI, a company created by the Western Commercial Space Center when they were unable to continue as a non-profit entity (Raymond 1997). Under the Launch Site Operator License, the California Spaceport is authorized to offer customers a site from which to conduct launches of several different types of vertically-launched launch vehicles over the 5-year term of the license. The U.S. Air Force 30th Space Wing has officially designated the California Spaceport as Space Launch Complex-8 (SLC-8).

Since the initial license in September 1996, SSI has successfully supported eight commercial launches, with no reportable safety or environmental infractions. In addition, several modifications to the SLC-8 Mobile Access Tower have been completed, including the following:

- new platforms and a gantry height extension
- new door and stairs at Level 3
- side extensions and Clean Room at Level 5 to support Fairing Operations
- Heating, Ventilation, and Air Conditioning to provide Class 100,000 air to the Clean Room
- conditioned air to all levels
- support to Electrical Ground Support Equipment Contingency Power and Hoist

2. PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to fulfill the FAA/AST's responsibilities under the Commercial Space Launch Act, 51 U.S.C. Ch. 509, §§ 50901-23 (2011) and Executive Order 12465, for oversight of commercial space launch activities, including licensing of launch sites. The FAA/AST's Proposed Action to renew the Launch Site Operator License to SSI for continued operation of the California Spaceport at VAFB would be consistent with the agency's responsibilities under CSLAA.

The need for the Proposed Action results from the statutory direction from Congress to encourage, facilitate, and promote commercial space launches and reentries by the private sector and facilitate the strengthening and expansion of the U.S. space transportation infrastructure, in accordance with the applicable requirements, including the Commercial Space Launch Act, 51 U.S.C. Ch. 509, §§ 50901-23 (2011), the Commercial Space Transportation Competitiveness Act of 2000 (Public Law 106-405); Executive Order 12465, Coordination and Encouragement of Commercial Expendable Launch Vehicle Activities (February 24, 1984); CFR Title 14, Aeronautics and Space, Parts 400-450, Commercial Space Transportation, Federal Aviation Administration, Department of Transportation; the Commercial Space Act of 1998 (Public Law 105-303); the U.S. Space Transportation Policy of 2004; and the National Space Policy of 2010.

3. DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE

3.1 Proposed Action

The FAA/AST's Proposed Action is to renew the Launch Site Operator License to SSI for continued operation of the California Spaceport at VAFB. The Launch Site Operator License would authorize SSI to continue to offer launch operators the ability to conduct launches of a variety of vertically-launched launch vehicles (Minuteman and Castor 120 derivative boosters) at the California Spaceport over the 5-year term of the license. Since SSI was issued its first Launch Site Operator License in 1996, SSI has supported eight commercial launches. Although the terms of the license do not specify the number of launches allowed, FAA selected a conservative number of up to 15 launches per year has been considered for the purposes of this environmental analysis because the draft Programmatic Biological Opinion (dated February 4, 2011) issued by the U.S. Fish and Wildlife Service (USFWS) (USFWS 2011a) for launch and routine maintenance operations at VAFB considers up to 15 space launches at VAFB. The draft Programmatic Biological Opinion includes launches at the California Spaceport as well as commercial and government launches conducted at other launch complexes on the base. The largest launch vehicle proposed to launch from the California Spaceport under the Proposed Action is the Athena III, consisting of a two-stage Castor 120 solid-propellant rocket motor with the addition of up to six Castor IVA or Castor IVXL rocket motors strapped to the first stage. The Athena III weighs up to 428,036 pounds and can boost payloads up to 8,980 pounds. The main principal exhaust products are hydrogen chloride, aluminum oxide, and carbon monoxide.

Under the Proposed Action, launch operations would continue to use the Integrated Processing Facility at Space Launch Complex 6 (SLC-6) on South Vandenberg and would include on-pad launch preparations, launch of vehicles, and post-launch related actions at the adjacent SLC-8 at the California Spaceport. In addition to vehicle launches, additional activities associated with launch operations which could occur at the California Spaceport include the following: transportation of launch vehicles, vehicle components, and propellants to the California Spaceport via road, rail, and/or air; assembly of vehicle components; ground-based tests and checkout activities; loading of payloads; fueling of launch vehicles; towing or moving launch vehicles to the launch location; and ignition of rocket motors. Existing infrastructure at VAFB would be used to support all launch activities at the California Spaceport. Therefore, the Proposed Action does not include any new construction. Existing support infrastructure includes the Mobile Access Tower, the launch pad, two Stack and Checkout Facilities, an Operations Support Building, utilities services, a rail spur, and an access road. On March 7, 2011, the FAA/AST received a letter from SSI stating that minor changes to the facility's Mobile Access Tower have been made since the last license renewal. These changes are identified above in Section 1.2. These minor modifications to the Mobile Access Tower would not substantively change launch operations; the frequency of launches and classes of vehicles that are launched from the California Spaceport under the Launch Site Operator License would not change. Therefore, the minor changes to the Mobile Access Tower did not require a modification to the Launch Site Operator License or additional environmental analysis.[2] These minor modifications

[2] Paragraph 411a of FAA Order 1050.1E, Change 1 states that, "The agency prepares supplements to an EA if the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. Significant information is information that paints a dramatically

are included in a category of actions for which an EA or environmental impact statement was not required because they would not individually or cumulatively have a significant effect on the human environment (see paragraph 310 of FAA Order 1050.1E).

3.2 No Action Alternative

The only alternative to the Proposed Action is the No Action Alternative. Under this alternative, the FAA would not renew the Launch Site Operator License to SSI for continued operation of the California Spaceport at VAFB, and there would be no commercial launches from the California Spaceport. Existing USAF activities would continue at VAFB. NEPA requires agencies to consider a "no action" alternative in their NEPA analyses and to compare the effects of not taking action with the effects of the action alternative(s). Thus, the No Action Alternative serves as a baseline to compare the impacts of the Proposed Action. The No Action Alternative would not satisfy the purpose of and need for the Proposed Action as stated above in Chapter 2.

3.3 Impacts and Resources Not Analyzed in Detail

This SEA does not analyze potential impacts to the following environmental impact categories as explained below.

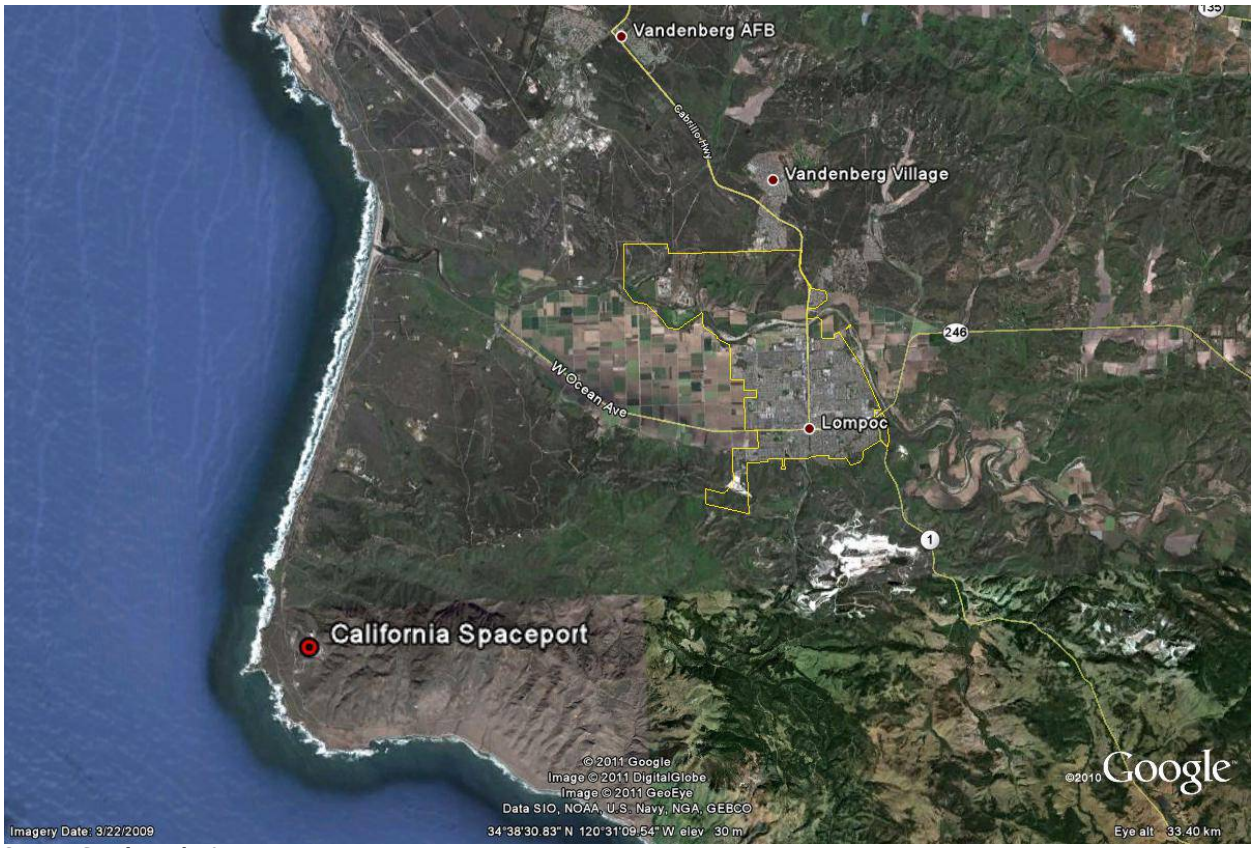
- Construction Impacts – The Proposed Action does not involve any new construction.
- Farmland Resources – The Proposed Action would not convert prime or unique farmland to non-agricultural use.
- Natural Resources and Energy Supply – The Proposed Action would not result in any measurable effect on local supplies of energy or natural resources.
- Secondary Impacts – The Proposed Action would not involve the potential for induced or secondary impacts to surrounding communities, such as shifts in population movement and growth, public service demands, and economic activity. The resources analyzed would incur negligible impacts; therefore, the potential for secondary (induced) impacts would also be expected to be negligible.
- Wild and Scenic Rivers – There are no wild and scenic rivers as designated by the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.) located on or near VAFB.

different picture of impacts compared to the description of impacts in the EA." The changes to the Mobile Access Tower do not constitute a significant change to the Proposed Action according to paragraph 411a and therefore are not considered further in this SEA.

4. AFFECTED ENVIRONMENT

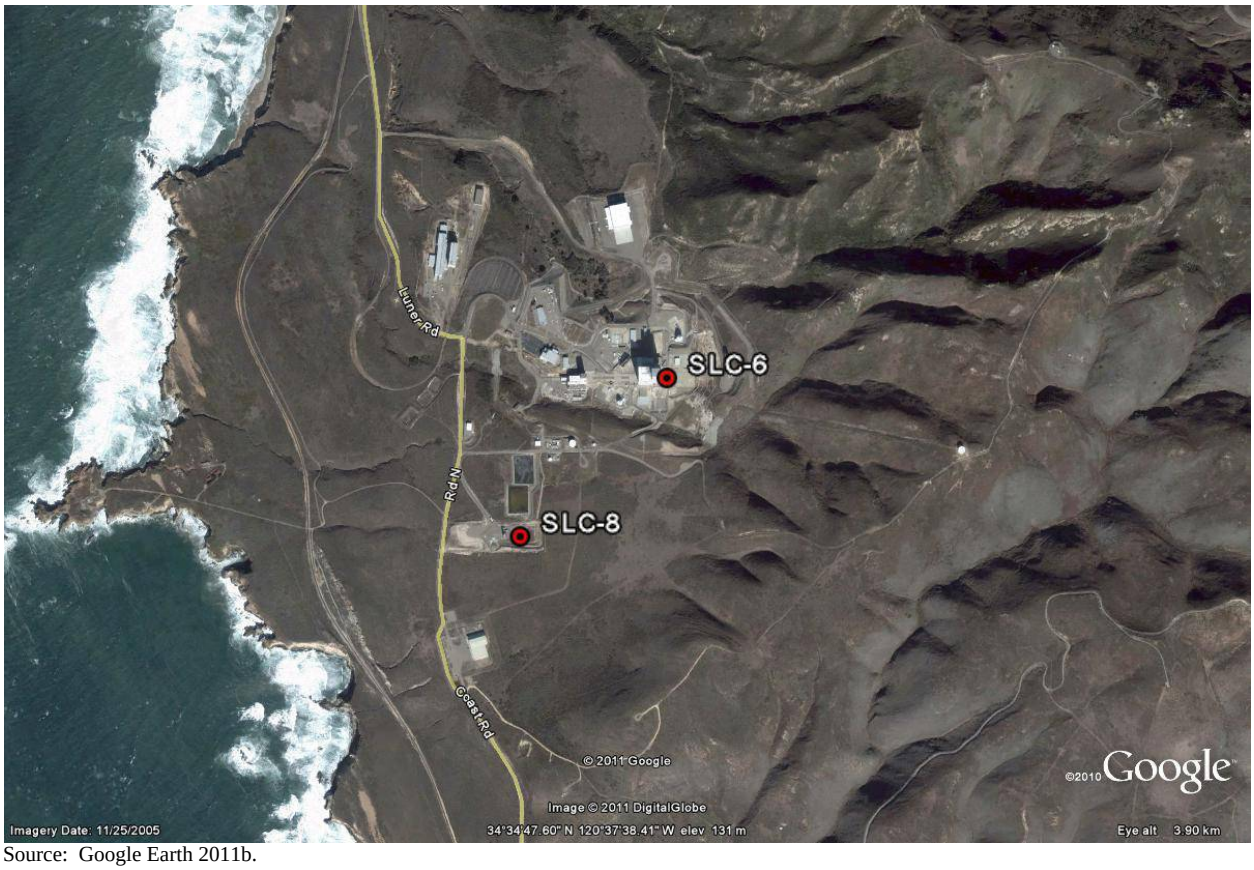
The California Spaceport is located on VAFB along the Pacific Ocean in western Santa Barbara County, California (see Exhibits 4-1 and 4-2). The base is a 99,000-acre military facility approximately 150 miles northwest of Los Angeles, California. VAFB is the third largest USAF installation and is operated by the 30th Space Wing of the USAF with the principal mission to conduct and support space and missile launches. The cities of Lompoc and Santa Maria (located 7 miles southeast and 17 miles northeast of VAFB, respectively), make up the two main urban areas in the region near VAFB and support a small number of industrial areas and small airports. VAFB occupies an ecological transition zone between the cool, moist conditions of coastal northern California and the semi-desert conditions of southern California. Approximately 60 percent of the base consists of open space and recreation area. An additional 30 percent is used for grazing and other forms of agriculture, and the remaining 10 percent of the base consists of facilities and operations associated with USAF activities.

Exhibit 4-1. Location of the California Spaceport at VAFB



Source: Google Earth 2011a.

Exhibit 4-2. SLC-6 and SLC-8 at VAFB



Source: Google Earth 2011b.

Section 4.1 below summarizes the affected environment as presented in the 1995 EA. Sections 4.2 through 4.8 provide updates to the existing conditions for air quality; biological resources; historical, architectural, archaeological, and cultural resources; Department of Transportation Act Section 4(f) properties; light emissions and visual resources; noise; and socioeconomics, environmental justice, and children's environmental health and safety. The 1995 EA, along with the updated information presented in Sections 4.2 through 4.8, is considered a valid discussion of the affected environment for the Proposed Action.

4.1 Affected Environment Presented in the 1995 EA

Exhibit 4-3 below summarizes the affected environment for the resource areas analyzed in detail in this SEA as presented in the 1995 EA. Sections 4.2 through 4.8 provide updates to only those resource areas in which new information is available.

Exhibit 4-3. Summary of the Affected Environment Presented in the 1995 EA by Resource Area

Resource Area	Summary
Air Quality[a]	VAFB is located in Santa Barbara County, within the North County of the South Central Coast Air Basin. Many sections of Santa Barbara County were not in attainment of the NAAQS and CAAQS in 1995. At that time, all of Santa Barbara County was designated a moderate non-attainment area according to both Federal and state ozone standards, with monitoring stations reflecting between 2 to 8 days per year on which the Federal standard was violated and between 30 and 45 days per year on which the state ozone standard was violated. In addition, Santa Barbara County was designated a non-attainment area for PM_{10} under the state standard.
Biological Resources (Fish, Wildlife, and Plants)	**General Ecology** VAFB is recognized as a biologically important area. South VAFB, the location of the California Spaceport, occupies a transition zone between the cool, moist conditions of northern California and the semi-desert conditions of southern California. The climate is Mediterranean, which is characterized by warm, dry summers and cool, wet winters. During the summer months, morning fog and inversions are common. The terrain is rolling and supports coastal sage scrub and grassland communities. Consequently, many plant species, as well as plant communities, reach their northern or southern limits in this area. **Fish** Fish species are present in the surface waters near the California Spaceport. Prominent drainages to the north of the California Spaceport include Cañada Honda Creek, Spring Canyon, Bear Creek, and the Santa Ynez River. The Santa Ynez River is the only major drainage of South Vandenberg. Cañada Honda Creek parallels the north side of Tranquillon Ridge. **Wildlife** Terrestrial wildlife at the California Spaceport consists of species common to coastal sage scrub, grassland, and chaparral communities. The riparian vegetation of many local drainages provides important habitat for wildlife. Wide-ranging species which frequent the area include coyotes, bobcats, mule deer, and red-tailed hawks. The region also has been used for cattle grazing for at least 60 years. VAFB's coastline is occupied by several species of seabirds and marine mammals. Peregrine falcons nest on the rocky cliffs. Western gulls, brown pelicans, pigeon guillemots, pelagic cormorants, rhinoceros auklets, black oystercatchers, and Brandt's cormorants use the rocky outcrops for roosting or nesting purposes. **Plants** Due to the predominance of southerly and westerly exposures in this area, the vegetation is primarily central coastal scrub or coastal sage scrub, grassland, and chaparral community types. These communities are adapted to periodic burning, and many plant species re-sprout readily after fire. Where disturbances are more frequent and intense, plants that flourish in disturbed ground and exotic species replace the native vegetation. Many of the local canyons and drainages support riparian woodlands. **Protected Species** Table 3-4 in the 1995 EA lists federally protected species, species proposed for listing, and candidate species that are present within the vicinity of the California Spaceport. Federally protected species listed in Table 3-4 include 2 species of fish (unarmored threespine stickleback and tidewater goby), an amphibian (California red-legged frog), 3 birds (American peregrine falcon, California brown pelican, and western snowy plover), and 1 mammal (southern sea otter). See Exhibit 4-5 below in this SEA for an updated list of federally protected species that recently have been considered by the USFWS and NMFS for effects from launch

Exhibit 4-3. Summary of the Affected Environment Presented in the 1995 EA by Resource Area

Resource Area	Summary
	operations at VAFB.
Land Use (Including Coastal Resources)	VAFB occupies approximately 6 percent of the total land area of Santa Barbara County. Sixty percent of VAFB is open space and recreation area, 30 percent is used for agriculture and grazing, and the remaining 10 percent is associated with USAF[b] activities. Areas of South Vandenberg are used for activities such as space launch complexes, tracking stations, and administrative and industrial facilities. VAFB operates according to a Base Comprehensive Plan. The objectives of the plan that are related to space and missile operations include the following: continue supporting Air Force Space Command; incorporate flexibility that will permit adaptation to changes in technology and reserve land to allow for proposed or unforeseen future needs; continue to perform the space and missile operations in a safe manner to protect the welfare of the base and the surrounding communities; continue to minimize the detrimental effects to the natural environment of VAFB; and continue to work with public interests in the area without jeopardizing base operations. As a commercially leased facility, the California Spaceport would also operate according to the Base Comprehensive Plan. The location of the California Spaceport is on a small terrace or plateau, approximately 400 feet above the Pacific Ocean, and between the ocean and Santa Ynez Mountains. In 1995, the California Coastal Commission found that the California Spaceport project was consistent to the maximum extent practicable with the California Coastal Management Plan.
Light Emissions and Visual Resources	The 1995 EA did not include light emissions and visual resources as a specific resource area. However, the 1995 EA did consider the potential impacts of one alternative (Cypress Ridge) on visual resources. Light sources at VAFB include security and street lighting on the grounds and parking lot lighting. The runways and airfields on VAFB contain lights and contribute to the overall light emissions from VAFB.
Historical, Architectural, Archaeological, and Cultural Resources	Paleoindian sites in coastal California are characterized by the presence of chipped stone tools and a lack of the millingstones common in later periods. One of these rare Paleo-coastal sites is a fluted projectile point fragment. It was found on a coastal plain east of Point Conception approximately 8 miles south of the California Spaceport. The only American Indian tribe affiliated with the area encompassed by VAFB is the Chumash Indian Tribe. In 1901, the tribe was moved to the Santa Ynez Reservation approximately 20 miles east of VAFB. There is one important Chumash settlement in the vicinity of the California Spaceport, the village of Nocto, approximately 2 miles south of the California Spaceport. Nocto is believed to have supported 60 to 70 people. The Space Launch Complex 6 (SLC-6) and the Payload Preparation Room (Building 375) were evaluated and recommended not eligible for inclusion on the National Register of Historic Places.
Department of Transportation Act Section 4(f) Properties	Because the USAF is not subject to Section 4(f) of the Department of Transportation Act, the 1995 EA did not specifically consider impacts to Section 4(f) properties. However, the 1995 EA included discussion of public parks and recreation areas, which could be considered Section 4(f) properties, located near VAFB. Nearby parks include Jalama Beach County Park, Ocean Beach County Park, Rancho Guadalupe County Park, Point Sal Beach State Park, and Gaviota Beach State Park.
Geology and Soils	VAFB is situated in a region of complex geology and soil patterns. The soils in the vicinity of the California Spaceport show close relation with the underlying geologic structures. The bedrock underlying the Cypress Ridge Area consists of the Upper Monterey Formation. The hills to the northeast of the California Spaceport are comprised of middle Miocene Tranquillon volcanic deposits. Marine terrace deposits, consisting of beds and gravel, underlie most of the project area and weathered material covers most of the

Exhibit 4-3. Summary of the Affected Environment Presented in the 1995 EA by Resource Area

Resource Area	Summary
	land surface. The Santa Ynez fault, about 40 miles to the east of the Cypress Ridge area, is the nearest seismically active, onshore, geologic feature.
Hazardous Materials, Pollution Prevention, and Solid Waste	Hazardous wastes at VAFB are managed in compliance with applicable environmental laws and regulations. All management of hazardous waste at the California Spaceport would be done in accordance with the VAFB Hazardous Waste Management Plan. Very limited amounts of hazardous or toxic materials are required for service of launch vehicles. Minimal amounts of isopropyl alcohol would be used for cleaning. The small quantities required would be segregated, labeled, and controlled in accordance with all appropriate regulations. Contaminated material would be disposed of in accordance with the approved procedures of VAFB.
Health and Safety	Space launch activities present numerous safety hazards that result from the high concentration of energy, hazardous materials, and large structures and rockets. However, launch activities would result in totally manageable risks to human health and safety. All activities associated with the California Spaceport would be monitored by the USAF and conducted in accordance with applicable regulations and accepted procedures. VAFB maintains a strong ground and flight safety program which includes control of the Western Range operations. The Western Range includes government and commercial space, ballistic, and aeronautical operations.
Noise	The 1995 EA did not include noise as a specific resource area. However, it was noted that noise would be generated during launches, including sonic booms produced when launch vehicles attain supersonic speeds.
Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety	According to the 1990 census, Santa Barbara County had a population of 369,608 people, most of whom lived near the Pacific Coast. Lompoc, with a population of 37,649 in 1995, was the nearest populated area to South Vandenberg. Farther to the north, Santa Maria, with a population of 61,284 in 1995, was second in size only to Santa Barbara at that time, with 85,571 people.
Water Resources (Including Floodplains and Wetlands)	South VAFB has no permanent lakes, impoundments, rivers, or floodplains. In 1995, no jurisdictional wetlands were located at the proposed California Spaceport site. The preferred site (which was selected) for the California Spaceport was concluded to be non-wetland as defined by the Army Corps of Engineers Delineation Manual. Several nearby drainages discharge directly into the Pacific Ocean. The flow rates are variable and many of the surface waters flow only during storm events. The nearest major drainage is Cañada Honda Creek, which is 2.3 miles to the north of SLC-6 and occupies approximately 12 square miles.

a. CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; PM_{10} = particulate matter with an aerodynamic diameter less than 10 micrometers; VAFB = Vandenberg Air Force Base

b. USAF = U.S. Air Force

4.2 Air Quality

Review of current air quality data indicates that Santa Barbara County is now in attainment for all pollutants under the National Ambient Air Quality Standards (NAAQS) (EPA 2010a; CARB 2009). Thus, Santa Barbara County is designated a "maintenance" area by the EPA and subject to Clean Air Act General Conformity. While the county is still designated a non-attainment area for ozone under the California Ambient Air Quality Standards (CAAQS), the county now experiences only 5 to 10 days per year on which the State ozone 8-hour standard is violated (SBCAPCD 2009). Santa Barbara County is still designated a non-attainment area for PM_{10} under the State standard (CARB 2010b).

Review of the current CAAQS and NAAQS found that both sets of standards have been revised since publication of the 1995 EA. These changes include revisions to the standards for ozone, nitrogen dioxide, sulfur dioxide, PM_{10}, $PM_{2.5}$, and lead. Exhibit 4-4 summarizes these changes.

Exhibit 4-4. Changes in State of California and National Ambient Air Quality Standards[a]

Pollutant[b]	Averaging Time	CAAQS 1995[c] (ppm)[d]	CAAQS 2010 (ppm)[d]	NAAQS 1995 (ppm)[d]	NAAQS 2011 (ppm)[d]
O_3	8 hour	--	0.070	--	0.075[e]
	1 hour	0.09	0.09	0.12	Revoked[f]
CO	8 hour	9.0	9.0	9.0	9.0
	1 hour	20.0	20.0	35.0	35.0
NO_2	Annual arithmetic mean	--	0.030	--	0.053
	1 hour	0.25	0.18	--	0.100
SO_2	Annual arithmetic mean	--	--	--	0.03
SO_2	24 hour	0.05	0.04	0.14	0.14
	3 hour	--	--	0.5	--
	1 hour	0.25	0.25	--	0.075
PM_{10}	Annual arithmetic mean	--	20 $\mu g/m^3$ [g]	50 $\mu g/m^3$	--
	24 hours	50 $\mu g/m^3$	50 $\mu g/m^3$	150 $\mu g/m^3$	150 $\mu g/m^3$
$PM_{2.5}$	Annual arithmetic mean	--	12 $\mu g/m^3$	--	15 $\mu g/m^3$
	24 hours	--	--	--	35 $\mu g/m^3$
Pb	Quarterly Average	--	--	--	Revoked[h]
	Rolling 3-Month Average	--	0.15 $\mu g/m^3$	--	0.15 $\mu g/m^3$
	30 Day Average	--	1.5 $\mu g/m^3$	--	--

Sources: CARB 2010a; EPA 2011

a. Secondary standards are not included in this table; only primary standards.
b. CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; PM_{10} = particulate matter with an aerodynamic diameter less than 10 micrometers; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 micrometers; SO_2 = sulfur dioxide
c. These standards must not be exceeded in areas, external of buildings, where the general public has access.
d. Units are ppm (part per million) unless otherwise noted.
e. On January 6, 2010, EPA proposed a new standard for 8-hour ozone to a level within the range of 0.060 to 0.070 ppm. The proposed rule is pending.
f. On June 15, 2005, EPA revoked the 1-hour ozone standard in all areas, except the 8-hour ozone nonattainment Early Action Compact (EAC) areas; Santa Barbara County is not one of the EAC areas (see http://www.epa.gov/oaqps001/greenbk/omcs.html#CALIFORNIA).
g. $\mu g/m^3$ = micrograms per cubic meter
h. On October 15, 2008, EPA revoked the 1978 quarterly average lead standard, although some areas have continuing obligations under that standard; Santa Barbara County is not one of the areas having continuing obligations because Santa Barbara County was in attainment for the 1978 lead standard when the EPA revoked the standard.

4.3 Biological Resources (Fish, Wildlife, and Plants)

The USAF recently consulted with the USFWS and National Marine Fisheries Service (NMFS) for potential effects from launch operations at VAFB on the federally protected species in Exhibit 4-5. The species depicted in Exhibit 4-5 that are federally listed under the Endangered Species Act (ESA) as threatened or endangered were recently analyzed as part of formal section 7 consultation between the USAF and the USFWS for launch and maintenance operations occurring at VAFB (USFWS 2011a). The marine mammal species listed in Exhibit 4-5 are protected by the Marine Mammal Protection Act (MMPA) and are included in the current Letter of Authorization (LOA) that NMFS issued to the USAF (NMFS 2011a).

Exhibit 4-5. Federally Protected Species Considered by the USFWS and NMFS for Effects from Launch Operations at VAFB

Common Name	Scientific Name	Federal Status[a]
Plants		
Beach layia	*Layia carnosa*	E
Gambel's watercress	*Nasturtium gambelii*	E
Gaviota tarplant	*Deinandra increscens* ssp. *villosa*	E
Lompoc yerba santa	*Eriodictyon capitatum*	E
Fish		
Tidewater goby	*Eucyclogobius newberryi*	E
Unarmored threespine stickleback	*Gasterosteus aculeatus williamsoni*	E
Vernal pool fairy shrimp	*Branchinecta lynchi*	T
Reptiles and Amphibians		
California red-legged frog	*Rana aurora draytonii*	T
Birds		
California least tern	*Sterna antillarum browni*	E
Southwestern willow flycatcher	*Empidonax traillii extimus*	E
Western snowy plover	*Charadrius alexandrinus nivosus*	T
Mammals		
California sea lion	*Zalophus californianus*	MMPA
Northern elephant seal	*Mirounga angustirostris*	MMPA
Northern fur seal	*Callorhinus ursinus*	MMPA
Pacific harbor seal	*Phoca vitulina richardsi*	MMPA
Southern sea otter	*Enhydra lutris nereis*	T
Invertebrates		
Vernal pool fairy shrimp	*Branchinecta lynchi*	T
El Segundo blue butterfly	*Euphilotes battoides* ssp. *allyni*	E

Sources: USFWS 2011a, NMFS 2011a

a. E = Endangered; T = Threatened; MMPA = Federally protected under the Marine Mammal Protection Act

In addition to the species listed in Exhibit 4-5, the USAF recently evaluated marine species protected under ESA in the VAFB Integrated Natural Resources Management Plan (INRMP), which was developed in consultation with USFWS and NMFS. The USAF assessed the federally listed southern steelhead trout (*Oncorhynchus mykiss*) and black abalone (*Haliotus cracherodii*) because these species could be located near VAFB. Southern steelhead trout might be located in two waterways on VAFB: the Santa Ynez River and Jalama Creek; however, USAF-funded surveys conducted in recent years have not located southern steelhead trout in any VAFB stream other than the Santa Ynez River (USAF 2011e). There is no designated critical habitat for southern steelhead trout located on VAFB (USAF 2011e). Abalone are gastropods

that live in rocky ocean waters and could be present along the California coast. Since 1992, withering foot syndrome, a disease associated with warmer waters, has caused a marked decline in black abalone numbers in the VAFB area (USAF 2011f).

4.4 Historical, Architectural, Archaeological, and Cultural Resources

Since the publication of the 1995 EA, numerous archaeological surveys have identified approximately 2,200 pre-historic and historic cultural sites at VAFB, many of which are in the vicinity of SLC-8 and have been recommended for inclusion on the National Register of Historic Places (USAF 2006). Prehistoric sites have included dense shell middens (refuse heaps), stone tools, village sites, stone quarries, and temporary encampments. In 2008, a close to full imprint of a Miocene dolphin fossil was discovered in the vicinity of the California Spaceport that has since been excavated (USAF 2009).

4.5 Department of Transportation Act Section 4(f) Properties

The FAA is subject to Section 4(f) of the Department of Transportation Act, 49 U.S.C.§ 303(c), as a non-exempt Department of Transportation agency. Because the USAF is not subject to Section 4(f), the 1995 EA did not specifically consider impacts to Section 4(f) properties. According to FAA Order 1050.1E, Section 4(f) matters relate to the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from an historic site of national, state, or local significance as determined by the officials having jurisdiction over the land.

Public parks and recreation areas are located adjacent to the California Spaceport and could be considered properties subject to Section 4(f). These include Jalama Beach County Park, Ocean Beach County Park, Rancho Guadalupe County Park, Point Sal Beach State Park, Gaviota Beach State Park, and the Vandenberg State Marine Reserve. The Vandenberg State Marine Reserve was established on September 27, 2008, to provide protection to marine life. The Reserve covers a 3-mile area around Point Arguello in South Vandenberg and serves to provide additional protection to marine mammals and other wildlife along the California coast.

4.6 Light Emissions and Visual Resources

The California Spaceport is characterized as a low visual sensitivity area because the site is considered an industrialized area. Light sources at and surrounding the California Spaceport include security and street lighting on the grounds, parking lot lighting, and safety lighting on the launch pad. The runways and airfields on VAFB contain lights and contribute to the overall light emissions from VAFB. Trains passing through VAFB also contribute to light emissions.

4.7 Noise

Noise at the California Spaceport is typically produced by activities at VAFB, such as automobile and truck traffic, aircraft operations (approximately 32,000 a year, including landings, takeoffs, and training approaches and departures for both fixed-wing and rotary-wing aircraft), and trains passing through VAFB. Existing noise levels on VAFB are generally low, with higher levels occurring near industrial facilities and transportation corridors (USAF 2006).

The immediate area surrounding VAFB is largely composed of undeveloped and rural land, with some unincorporated residential areas in Lompoc and Santa Maria Valley, and Northern Santa

Barbara County. The Cities of Lompoc and Santa Maria, which are the two main urban areas in the region, support a small number of industrial areas and small airports. Sound levels measured for the area are typically low, except for higher levels in the industrial areas and along transportation corridors. The rural areas of Lompoc and Santa Maria Valleys typically have low overall community noise equivalent levels, approximately 40 to 45 dBA. Occasional aircraft flyovers can increase noise levels for a short time (USAF 2006).

4.8 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety

A review of current information has shown that the population in Santa Barbara County has increased since the publication of the 1995 EA. According to the U.S. Census Bureau (2010), Santa Barbara County had an estimated population of 407,057 in 2009 compared to a reported population of 369,608 in the 1995 EA. Except for this increase in population, the affected environment related to socioeconomics remains substantially the same as that described in the 1995 EA.

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires Federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This Executive Order was issued in 1994 and was not specifically addressed in the 1995 EA. Environmental justice concerns include consideration of the race, ethnicity, and poverty status of populations near the site of a Proposed Action. The CEQ defines "minority" to consist of the following groups: Black/African American, Asian, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native, and Hispanic populations (regardless of race). According to the U.S. Census Bureau (2010), of the 407,057 people in Santa Barbara County in 2009, approximately 2.4 percent were Black/African American, 1.7 percent were American Indian or Alaska Native, 4.5 percent were Asian, 0.3 percent were Native Hawaiian or Other Pacific Islander, and 40.4 percent were Hispanic. Thus, approximately 49.3 percent (or 200,679 people) of the population in Santa Barbara County in 2009 was considered minority. The CEQ defines "low-income populations" as those identified with the annual statistical poverty thresholds from the U.S. Census Bureau. According to the U.S. Census Bureau (2010), approximately 12.7 percent (or 51,696 people) of the population in Santa Barbara County in 2009 was low-income.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires Federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children, and ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. This Executive Order was not issued until 1997. Therefore, the 1995 EA did not specifically consider the environmental health or safety impacts to children. The California Spaceport is not in the vicinity of schools, daycare facilities, playgrounds, or other places where children are concentrated.

5. ENVIRONMENTAL CONSEQUENCES

The environmental impacts analysis in this SEA addresses the potential environmental impacts of the operation of the California Spaceport. Where appropriate, the analysis summarizes and references the potential impacts that were discussed in the 1995 EA. The Proposed Action in this SEA includes a maximum number of 15 launches, which is nine less than the maximum number proposed in the 1995 EA (24 launches). Therefore, the potential environmental impacts analyzed under this SEA would occur less often over the course of the year.

5.1 Proposed Action

5.1.1 Air Quality

The primary air quality impacts resulting from rocket launches at the California Spaceport would be potential contributions of criteria pollutants and air toxics in the troposphere, and contributions to global warming and ozone depletion in the stratosphere. Impacts to the troposphere would be generated by the ignition of rocket motors in the troposphere during launches. Accidents near the ground or ground aborts also could result in impacts to air quality. However, since ground-level exhaust clouds would disperse quickly, and because the increase in exhaust emissions due to launch operations would be minimal, no significant impacts to air quality are expected from the Proposed Action.

Since Santa Barbara County was in non-attainment for ozone at the time the 1995 EA was prepared, the USAF was required to complete a Conformity Analysis under the Federal General Conformity Rule to determine whether the Proposed Action in the 1995 EA would hinder the County's plans to meet national standards for air quality. Assuming a maximum of 24 launches per year of the Athena III (including up to six strap on Castor IVA rocket motors), the annual emissions of ozone precursors was estimated to be 2.48 tons per year, well below the *de minimis* threshold level of 100 tons per year at which the Conformity Rule applies. However, as no standards were in place for nitrogen dioxide, sulfur dioxide, or $PM_{2.5}$ in 1995, these pollutants were not considered in the original analysis. A review of recent air quality monitoring data gathered from stations in the vicinity of the California Spaceport demonstrates that measured concentrations of these pollutants from all sources in the vicinity of the California Spaceport are well within both the NAAQS and CAAQS for these pollutants (see Exhibit 5-1). As discussed in Section 4.2, Santa Barbara County is designated a maintenance area by the EPA, because it is now in attainment for all pollutants under the NAAQS (EPA 2010a; CARB 2009). Emissions generated by the Proposed Action would not exceed General Conformity *de minimis* levels. Thus, the Proposed Action would not require a General Conformity determination for launch events. While the county is still designated a non-attainment area for ozone under the CAAQS, the county now experiences only 5 to 10 days per year on which the State ozone 8-hour standard is violated (SBCAPCD 2009). Santa Barbara County is still designated a non-attainment area for PM_{10} under the State standard (CARB 2010b).

Launch operations also could impact the stratosphere through emission of ozone depleting substances and greenhouse gases. However, emissions of greenhouse gases, such as carbon dioxide and water vapor, due to the Proposed Action would be extremely small relative to U.S. annual emissions. Along with the updates provided in Chapter 4, the data and analyses

Exhibit 5-1. Comparison of Air Quality Monitoring Data for South Vandenberg to Ambient Air Quality Standards

Pollutant[a]	Averaging Time	Nearest Monitoring Station	Maximum Measured Concentration (ppm[b]) (2009)	CAAQS 2011 (ppm[b])	NAAQS 2011 (ppm[b])
NO_2	Annual	VAFB South Base	0.001	0.030	0.053
	1-hour	VAFB South Base	0.02	0.18	0.100
SO_2	Annual	VAFB South Base	0	NDS[c]	0.03
	24-hour	VAFB South Base	0.0025	0.04	0.14
	3-hour	VAFB South Base	0.004	NDS	NDS
	1-hour	VAFB South Base	0.008	0.25	0.075
$PM_{2.5}$	Annual	VAFB South Base	6.6 µg/m^3	12 µg/m^3	15 µg/m^3
	24-hour	VAFB South Base	19.6 µg/m^3	NDS	35 µg/m^3

Sources: CARB 2009, 2010a; EPA 2010b, 2011; SBCAPCD 2009

a. NO_2 = nitrogen dioxide; $PM_{2.5}$ = particulate matter with an aerodynamic diameter less than 2.5 micrometers; SO_2 = sulfur dioxide

b. Units are ppm (part per million) unless otherwise noted.

c. NDS = no data standard

d. µg/m^3 = microgram per cubic meter

contained in the 1995 EA regarding air quality remain substantially valid, and the Proposed Action is not expected to have a significant impact on air quality.

5.1.2 Biological Resources (Fish, Wildlife, and Plants)

Impacts to biological resources (fish, wildlife, and plants) from the Proposed Action would be comparable to those described in the 1995 EA, where it was determined that operation of the California Spaceport could result in minor impacts to vegetation and wildlife. Vegetation might be affected by the launch exhaust products from near-field sources, far-field deposition, or by combustion products associated with potential launch failures. Exposures are expected to be very low and effects on vegetation are expected to be minor and short-term. Potential impacts include localized scorching and spotting of vegetation due to high temperatures and fire, and defoliation of vegetation due to acid deposition from exhaust emissions. However, these impacts would be expected to be temporary and not of sufficient intensity to cause long-term damage to local plant populations. Monitoring and mitigation measures implemented by the USAF at VAFB ensure that any impacts on vegetation from launch activities, including changes in animal use of the habitat, are monitored, documented, and minimized to the extent possible.

Launch vehicle operations at the California Spaceport would not be expected to significantly impact fish, birds, or other terrestrial or aquatic wildlife in the vicinity of the California Spaceport. Launch operations could result in acidification of surface waters in areas near the launch site as a result of acid deposition from rocket exhaust, which can lead to harmful conditions for fish species. However, the exhaust would be of very short duration and would be rapidly dispersed due to the mechanical and thermal turbulence of the exhaust gases, the movement of the launch vehicle, and wind action. Additionally, the nearest major drainage is Cañada Honda Creek, which is approximately 2.0 miles north of SLC-8. Thus, no significant adverse impacts on fish species are expected. Launch vehicles would create noise that might produce a startle response in birds or other wildlife near the California Spaceport, leading to temporary interruption of foraging activities and nesting in the immediate area of the launch pads. In addition, harbor seals may startle and flush into the water during launch activities at the California Spaceport. Observations have shown that the majority of the harbor seals return within 24 hours of launch activity with no identified adverse effects. In addition, noise generated

from ground-level rocket launches is generally of low frequency and short duration. Therefore, no significant impacts on wildlife from launch vehicle operations are expected.

Vehicles launched from the California Spaceport also could generate sonic booms. Sonic booms have been found to have the potential to affect wildlife. The occurrence and intensity of sonic booms would vary according to the type of launch vehicle, the launch trajectory, and the weather conditions at the time of liftoff. A review of current information shows that there is a possibility that sonic booms would reach the ocean surface and possibly reach underwater depths. These types of booms represent a threat of physical and physiological impairment to marine animals in the vicinity of the water surface (FAA 2001). For even the largest launch vehicles that are launched from VAFB, such as the Delta IV, launch noise and sonic booms can be expected to cause no more than a startle response and flight to water for harbor seals, California sea lions, and other pinnipeds that are hauled out on the coastline of VAFB during a launch. The noise may cause temporary, but not permanent, hearing sensitivity to individuals (NMFS 2009a).

The spent stages from launch vehicles would be jettisoned in the open waters of the Pacific Ocean. Jettisoned stages from the launch vehicles would fall into the open ocean and sink to the ocean floor. There is a remote possibility that the jettisoned stages of the launch vehicles could strike a marine animal. A review of information issued after the 1995 EA shows that the probability of such a strike was approximated and results indicate an extremely small chance of a launch vehicle or jettisoned stage contacting a marine mammal (FAA 2001).

The USAF is responsible for ensuring that base activities (including those at the California Spaceport) do not cause significant adverse impacts to special status species, including federally listed threatened and endangered species and marine mammals protected by the ESA and MMPA. VAFB manages species and base activities to minimize potential impacts on species as outlined in its INRMP, and operates under numerous Biological Opinions and an annual LOA for the protection of these species. VAFB continually works with the USFWS and NMFS, and reinitiates consultation as needed, to update the INRMP, Biological Opinions, and the LOA when new species are listed or new activities are proposed that have not already been assessed for potential impacts. Currently, VAFB is formally consulting with the USFWS to obtain a Programmatic Biological Opinion that would include all recurring/routine activities (government and commercial) and USFWS-administered, federally listed species protected by the ESA that occur on the base (see Exhibit 4-5 for list of species). The final Programmatic Biological Opinion is expected to be issued by September 2011. Once finalized, the USAF would be required to comply with the terms and conditions stated in the Programmatic Biological Opinion to ensure base operations (including launches from the California Spaceport) do not jeopardize the continued existence of any federally listed species occurring on the base.

The FAA/AST sent a letter to the USFWS on June 17, 2011 seeking agreement with the FAA/AST's determination that the Proposed Action of renewing LSO 01-005 to SSI for the continued operation of the California Spaceport would comply with section 7 of the ESA per the Programmatic Biological Opinion (see Appendix A). The FAA/AST noted in the letter that the USAF is responsible for ensuring that base activities do not cause significant adverse impacts to federally-listed threatened and endangered species protected by the ESA. The FAA/AST also noted in the letter that the USAF would ensure that all government and commercial launch activities at VAFB comply with the terms and conditions stated in the Programmatic Biological Opinion. As a result, the FAA/AST's action of renewing SSI's Launch Site Operator License would be covered under the Programmatic Biological Opinion. The USFWS responded in an

email stating that the Proposed Action would comply with section 7 of the ESA via the Programmatic Biological Opinion, assuming all aspects of the Proposed Action do not exceed the limitations established in the Programmatic Biological Opinion (USFWS 2011b) (see Appendix A). The FAA/AST confirms that the activities associated with the Proposed Action in this EA are within the limitations stated in the Programmatic Biological Opinion.

The additional federally listed marine species (southern steelhead trout and black abalone) mentioned in Section 4.3 above that were not considered in the Programmatic Biological Opinion are under NMFS jurisdiction. In consultation with the NMFS, the USAF determined that launch operations occurring at the California Spaceport would have no effect on federally listed species under NMFS jurisdiction (USAF 2011g). This determination was made after considering the distance from the California Spaceport to the locations where these marine species and their habitat are located and the sensitivity (or lack thereof) of these species to launch noise and launch exhaust plumes. The VAFB INRMP, which was reviewed and approved by the NMFS and USFWS, indicates that black abalone are not likely located in coastal waters near VAFB (USAF 2011f). The primary concern expressed by the NMFS with potential steelhead streams is to avoid actions that preclude upstream fish passage, in the event that steelhead uses them in the future (USAF 2011e). The Proposed Action does not involve construction that would preclude upstream fish passage. The USAF and NMFS also agreed that if a launch anomaly ever occurred that had the potential to affect a federally listed species, the USAF and NMFS would conduct an emergency consultation. As mentioned above, the USAF is responsible for ensuring that all base activities (including those at the California Spaceport) do not cause significant adverse impacts to special status species, including federally listed threatened and endangered species protected by the ESA.

Marine mammals protected under the MMPA could be affected by launch activities at the California Spaceport. New assessments have been completed for launch activities at VAFB since the 1995 EA. In 2009, NMFS completed the *Environmental Assessment on the Issuance of Regulations to Take Marine Mammals by Harassment Incidental to Space Vehicle and Test Flight Activities from Vandenberg Air Force Base, California* (NMFS 2009a). NMFS's Proposed Action was to promulgate 5-year regulations and subsequently to issue LOAs to govern the unintentional take of marine mammals by space launch and aircraft activities at VAFB from February 2009 through 2014. Based on this 2009 EA, NMFS issued a FONSI (NMFS 2009b) allowing for the take of four marine mammal species: Pacific harbor seals, California sea lions, Northern elephant seals, and Northern fur seals. The take permit includes only Level B Harassment, incidental to space vehicle and test flight activities from VAFB (NMFS 2010). The LOA permits up to 20 annual rocket launches of ten different rocket types from VAFB (NMFS 2010), which include launches at the California Spaceport as well as commercial and government launches conducted at other launch complexes on the base. The LOA was recently renewed on February 7, 2011 and expires on February 6, 2012. VAFB is responsible for ensuring operation of the California Spaceport complies with the LOA. VAFB also is responsible for monitoring the impacts of launch activity on seals, sea lions, and other marine mammals.

5.1.3 Noise

The area surrounding VAFB primarily consists of undeveloped and rural land, and potential impacts on noise-sensitive receptors are not expected under the Proposed Action. The highest

noise levels in the area are those associated with industrial facilities, transportation routes, occasional aircraft flyovers, and noise resulting from missile and space launches at VAFB. Noise produced by launch operations at the California Spaceport would consist primarily of rocket noise during takeoff and sonic booms generated as launch vehicles reach supersonic speeds. Exposure to short-term noise and sonic booms from launches could cause startle effects in marine mammals and bird species (see Section 5.2.1 above for discussion of the potential impact of launch noise on wildlife). This noise would be directed over the open ocean and would not be expected to affect the California coastline environment. In addition, launches from the California Spaceport would be infrequent (a maximum of 15 launches per year) and would produce noise levels lower than that of other launch operations conducted at VAFB. The data and analyses contained in the 1995 EA regarding noise remain substantially valid, and the Proposed Action is not expected to have significant noise impacts at or within the vicinity of VAFB.

5.1.4 Land Use (Including Coastal Resources)

All launch activities would be consistent with the Base Comprehensive Plan. Launch operations would continue to use existing infrastructure and all pre-launch processing activities would continue to occur in their designated land use areas. Public entry into the Vandenberg State Marine Reserve may be restricted at the discretion of the California Department of Fish and Game to protect wildlife, aquatic life, or habitat, or by the Commander of VAFB to protect and provide safety for base operations.

In addition, in 1995, the California Coastal Commission found that the California Spaceport project was consistent to the maximum extent practicable with the California Coastal Management Plan. As operations have not changed and no new construction would occur, there would be no impact to coastal resources and they would continue to be managed in accordance with all Federal, state, and local laws.

The data and analyses contained in the 1995 EA regarding land use remains substantially valid and the Proposed Action is not expected to have a significant impact on land use. See Section 5.6.1 for discussion of the potential impacts from closure of Department of Transportation Act Section 4(f) resources.

5.1.5 Historical, Architectural, Archaeological, and Cultural Resources

The Proposed Action would not require any ground disturbing activities or removal, alteration, or physical impingement of any archaeological or historical resources. The possibility of effects to historical, architectural, archaeological, or cultural resources exists due to rare circumstances such as launch debris accidentally striking the ground where cultural resources are located or disturbance of Native American rituals in the vicinity of the California Spaceport from noise associated with launch activity. Under these rare circumstances, coordination between range representatives and applicable agencies would occur and mitigation measures would be developed. The Proposed Action would not represent a new type of activity in the area that would affect the character or setting of cultural resources. The California Spaceport is located ten miles north of Point Conception, an area of cultural relevance to the Chumash and other Native American tribes. However, since the California Spaceport is beyond visual range of Point Conception, the Proposed Action is not expected to have a significant impact on visual resources. As part of the environmental review process in 1995 for construction and operation of the

California Spaceport, the USAF consulted the California State Historic Preservation Officer. No adverse impacts on historic properties listed on or eligible for listing on the National Register of Historic Places were identified. Along with the updates provided in Chapter 4, the data and analyses contained in the 1995 EA regarding historical, architectural, archaeological, and cultural resources remain substantially valid, and the Proposed Action is not expected to have a significant impact on historical, architectural, archaeological, or cultural resources.

5.1.6 Department of Transportation Act Section 4(f) Properties

Closure of Section 4(f) properties (e.g., recreational areas) might occur during launch events. Under the Proposed Action, closure of Section 4(f) properties would only have the potential to occur a maximum of 15 times during the year. However, the closure would only last as long as necessary to assure the public is safe during a lunch. In order to minimize potential impacts to recreational users, launch dates and closures would be posted publicly in advance.

The Proposed Action would not adversely impact Section 4(f) properties in the vicinity of the California Spaceport because launch operations would not result in substantial impairment[3] of Section 4(f) properties. The Proposed Action would not be considered a constructive or physical use of these Section 4(f) properties. The Proposed Action would not adversefly affect the activities, features, and attributes of the Section 4(f) properties, so the impacts are *de minimis*.

5.1.7 Geology and Soils

Exhaust plumes produced during rocket launches may contain gaseous hydrochloric acid that could affect the chemical properties of the soil in the vicinity of the California Spaceport. However, because the hydrochloric acid resulting from California Spaceport launches would be airborne in small quantities, and because the properties of the soil in the vicinity of the California Spaceport would allow it to adequately buffer this acid deposition, hydrochloric acid deposition is not likely to have a significant adverse impact on the chemical property of the soil in the vicinity of the California Spaceport. The probability of accidental leaks and spills that could lead to the contamination of soil is low. Any leaks or spills would be dealt with according to existing procedures set forth at VAFB, including compliance with the Spill Prevention, Control, and Counter Measures Plan and the Hazardous Materials Emergency Response Plan. In addition, the Proposed Action does not involve any new construction, and there is a low probability of an impact on geology and soils during launch events. The data and analyses contained in the 1995 EA regarding geology and soils remain substantially valid, and the Proposed Action is not expected to have a significant impact on geology and soils.

5.1.8 Hazardous Materials, Pollution Prevention, and Solid Waste

Handling and use of hazardous and toxic materials at the California Spaceport would be limited. Hazardous materials to be used and stored onsite in support of launch activities at the California Spaceport would consist of various solvents and cleaners, paints and primers, adhesives, alcohol, lubricants, and propellants. Rocket motor fuels including hydrazine, nitrogen tetroxide, kerosene, and liquid oxygen, as well as high pressure helium, gaseous nitrogen, and other materials also would be used to support launch operations. During pre-flight preparations and

[3] As defined in Section 4(f) of the Department of Transportation Act, 49 U.S.C.§ 303(c), impairment of a resource occurs when impacts are sufficiently serious such that the value of the site in terms of its prior significance and enjoyment are substantially reduced or lost.

post-launch activities, all hazardous materials and associated solid wastes would be responsibly managed in accordance with VAFB's Hazardous Materials Management Plan, Hazardous Waste Management Plan, Spill Prevention, Control and Counter Measures Plan, and Hazardous Materials Emergency Response Plan in order to prevent impacts on human or environmental health resulting from hazardous material spills or improper handling of hazardous materials or solid wastes. The data and analyses contained in the 1995 EA regarding hazardous materials, pollution prevention, and solid waste remain substantially valid, and the Proposed Action is not expected to have significant impacts related to hazardous materials, pollution prevention, and solid waste.

5.1.9 Health and Safety

Launch operations have the potential to result in safety hazards to launch personnel resulting from exposure to hazardous materials and high concentrations of energy during launch operations. In addition, personnel and members of the public in the vicinity of the California Spaceport could be exposed to safety risks during launch failures. However, VAFB maintains a strong ground and flight safety program, which includes all flight operations from the California Spaceport. The FAA also would require SSI and future vehicle operators to satisfy applicable safety requirements prior to issuing a license. As a result, all launch activities would be conducted in accordance with applicable USAF and FAA regulations and procedures in order to minimize the safety risk associated with launches. In addition, safety and protection procedures are in place to prevent harmful exposure to personnel resulting from hydrazine and other toxic materials used during launch operations. The data and analyses contained in the 1995 EA regarding health and safety remain substantially valid, and the Proposed Action is not expected to have a significant impact on health and safety.

5.1.10 Light Emissions and Visual Resources

Launch operations would generate light emissions and leave visible contrails, but they would be similar in visual impact from existing operations. Because this area is already used for aircraft takeoffs and landings, the visual sensitivity is low. Launch operations would not substantially degrade the existing visual character or quality of the site and its surroundings. Visual impacts from launch operations, including impacts on Jalama Beach, would be infrequent, temporary, and minor. Therefore, the Proposed Action is not expected to have significant impacts related to light emissions and visual resources.

5.1.11 Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety

The California Spaceport operations might result in an influx of people to the area for specific launch operations, such as contractors that support individual launches. The potential impacts from this influx would be economically beneficial to the area around the California Spaceport. These potential beneficial impacts would likely be short-term and minor, lasting only during the duration of individual launch events. The Proposed Action would not represent a change in existing launch operations at the California Spaceport. The data and analyses contained in the 1995 EA regarding socioeconomics remain substantially valid, and the Proposed Action is not expected to have significant socioeconomic impacts.

As mentioned in Chapter 4, Executive Order 128898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, were not addressed in the 1995 EA. However, a review of current information indicates that the Proposed Action would not disproportionately adversely affect minority and low-income populations and children's environmental health and safety, because the Proposed Action would have negligible impacts on all residents in the vicinity of the California Spaceport. Also, the California Spaceport is not in the vicinity of schools, daycare facilities, playgrounds, or other places where children are concentrated. Therefore, the Proposed Action would not have significant impacts related to environmental justice and children's environmental health and safety.

5.1.12 Water Resources (Including Floodplains and Wetlands)

No new construction is associated with the Proposed Action. Therefore, there would be no loss of wetlands or floodplains in the vicinity of the California Spaceport. Launch operations such as fueling and assembly of launch vehicles may result in inadvertent spills or releases of fuel or materials that could result in impacts to surface water quality or groundwater quality. However, in the event of a launch vehicle accident, runoff and residue from the site would be contained, remediated, and disposed of in accordance with VAFB's Hazardous Materials Emergency Response Plan. For these reasons, the Proposed Action is not expected to have significant impacts on surface water quality or groundwater quality.

Although the site is near coastal waters, there are no known creeks or other surface waters present in the immediate vicinity of the California Spaceport. The nearest major drainage is Cañada Honda Creek, which is 2.3 miles north of SLC-6. Water supply to VAFB and subsequently the California Spaceport is primarily from the California Coast Central Water Authority, with four wells in the San Antonio Creek groundwater basin that are used as supplemental water supplies (CDWR, 2011). Launches would require the use of water for sanitation and maintenance purposes only. Water would not be used for deluge or acoustic suppression. VAFB's water supply of 5,500 acre-feet per year would be able to accommodate the California Spaceport's water requirements for launch activities (CCWA, 2003). Groundwater would not be used for any launch activities. Minimal deposition of hydrochloric acid associated with the use of solid rocket motors would be concentrated near the launch pad, and adverse impacts to surface water and groundwater quality are not anticipated. The data and analyses contained in the 1995 EA regarding water resources remain substantially valid, and the Proposed Action is not expected to have a significant impact on water resources.

5.2 No Action Alternative

Under the No Action Alternative, the FAA would not renew SSI's Launch Site Operator License for continued operation of the California Spaceport, and no additional potential impacts on or related to the following resource areas would occur: air quality; biological resources; noise; land use; historical, architectural, archaeological, and cultural resources; Department of Transportation Act Section 4(f) properties; geology and soils; hazardous materials, pollution prevention, and solid waste; health and safety; light emissions and visual resources; socioeconomics, environmental justice, and children's environmental health and safety; and water resources. However, not renewing the license would forgo the potential added minor, short-term beneficial impact to the local economy from the Proposed Action. Existing USAF

activities would continue at VAFB. The No Action Alternative would not satisfy the purpose of the Proposed Action, which is to fulfill the FAA/AST's responsibilities under the Commercial Space Launch Act, 51 U.S.C. Ch. 509, §§ 50901-23 (2011) and Executive Order 12465, for oversight of commercial space launch activities, including licensing of launch sites. Similarly, the No Action Alternative would not satisfy the need for the Proposed Action, which results from the statutory direction from Congress to encourage, facilitate, and promote commercial space launches and reentries by the private sector and facilitate the strengthening and expansion of the U.S. space transportation infrastructure, in accordance with the applicable requirements noted in Chapter 2.

6. CUMULATIVE IMPACTS

The 1995 EA analyzed the potential cumulative impacts of constructing and operating the California Spaceport by assessing the environmental impacts of past, present, and reasonably foreseeable future actions at VAFB in 1995, which included ongoing military launch and aviation activities at VAFB. The 1995 EA concluded that while minor impacts related to air quality, noise, and biological resources could result from the activities at the California Spaceport in conjunction with these other planned activities at VAFB, none of these cumulative impacts would be significant.

Review of current information indicates that both commercial and government launches are expected to continue at VAFB in the foreseeable future. Launch forecasts for VAFB project between 6 and 13 total annual launches from 2009–2014, including both commercial launches at the California Spaceport and government launches from other launch complexes at VAFB (FAA 2009). Proposed launches include those planned for the California Spaceport and VAFB, which includes launches of larger vehicles such as the Atlas V and Falcon 9.

Current and foreseeable construction projects at VAFB include modifications to SLC-4E and installation of new infrastructure to accommodate the Falcon 9 and Falcon 9 Heavy launch vehicle programs. The USAF recently completed an EA and issued a FONSI for this activity (USAF 2011c), where the FAA was a cooperating agency. The USAF FONSI stated that no cumulative significant or adverse impacts should result from activities associated with the modifications to SLC-4E and operation of the Falcon 9 and Falcon 9 Heavy launch vehicle programs, when considered in conjunction with past, present, or reasonably foreseeable future actions near and on VAFB, including launches from the California Spaceport.

Other foreseeable projects occurring at VAFB include infrastructure maintenance and upgrades. The USAF currently is developing a NEPA analysis of the replacement and realignment of power lines that support many areas of South Vandenberg (USAF 2011d). When combined with these operations and infrastructure maintenance and upgrade activities, the Proposed Action is not expected to result in significant cumulative impacts.

Additionally, as part of operating the California Spaceport, launch and reentry of reusable suborbital rockets under experimental permits could occur. The FAA/AST analyzed the potential environmental impacts of issuing experimental permits for the launch and reentry of reusable suborbital rockets from the California Spaceport in the September 2009 Final Programmatic Environmental Impact Statement for Streamlining the Processing of Experimental Permit Applications (PEIS; FAA 2009). The FAA/AST issued a Record of Decision (ROD) in October 2009, deciding to implement the Proposed Action as described in the PEIS. No significant impacts on any resource area were identified for the California Spaceport as a result of the launch and reentry of reusable suborbital rockets (see Section 4.2 of the PEIS for a discussion of potential impacts at the California Spaceport). No significant cumulative impacts on any resource area from the Proposed Action are expected when combined with impacts from launches under an experimental permit.

The Proposed Action in conjunction with other activities at VAFB could result in a minor, temporary increase in air emissions. However, emissions would be of very short duration and would disperse rapidly, and thus are not expected to affect air quality compliance at the facility. While operation of the California Spaceport would result in emissions of greenhouse gases and

ozone depleting substances, these emissions would be extremely small in the context of national and global emissions. As a result, the incremental contribution to cumulative air quality impacts from California Spaceport operations would be negligible.

The noise generated from the Proposed Action would be infrequent (up to 15 launches annually), and noise levels would be less than or similar to the types of noise routinely generated at VAFB. When combined with other noise producing aviation and launch activities at the base, little to no impact would be expected. As a result, the incremental contribution to cumulative noise impacts from California Spaceport operations would be negligible.

The cumulative increase in noise and emissions associated with operation of the California Spaceport and ongoing military launch operations could have an adverse impact on biological resources. However, launch operations have been ongoing at VAFB since the mid 1950s, and therefore any wildlife present in the area would be those species that tolerate the existing noise and emissions levels associated with an active military base. Therefore, the cumulative impacts on biological resources are expected to be minor. In addition, through consultation with the Services, VAFB has implemented various plans and measures to limit the impact of launch operations on protected species. The USFWS Programmatic Biological Opinion includes terms and conditions that would minimize potential cumulative impacts on protected species. Similarly, the NMFS LOA contains mitigation, monitoring, and reporting requirements to ensure minimal adverse impacts on protected species.

California Spaceport operations would result in no impact or negligible impacts to land use; historical, architectural, archaeological, and cultural resources; Department of Transportation Section 4(f) properties; geology and soils; hazardous materials, pollution prevention, and solid waste; health and safety; socioeconomics, environmental justice, and children's environmental health and safety; and water resources at VAFB. Therefore, the Proposed Action would not contribute to cumulative impacts for these resources. In summary, the Proposed Action in conjunction with all past, present, and reasonably foreseeable future actions is not expected to result in significant cumulative impacts on any resource area.

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APPENDIX A

AGENCY CORRESPONDENCE

U.S. Department of Transportation
Federal Aviation Administration

Office of the Associate Administrator for Commercial Space Transportation

800 Independence Ave., SW
Washington, DC 20591

June 17, 2011

Ms. Diane Noda
Field Supervisor
U.S. Fish and Wildlife Service, Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

RE: Section 7 Consultation for Activities Associated with FAA-issued Licenses at the California Spaceport, Vandenberg Air Force Base, California

Dear Ms. Noda:

In September 1996, the Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST) issued a Launch Site Operator License (LSO 01-005) to Spaceport Systems International (SSI) to operate the California Spaceport at Vandenberg Air Force Base (VAFB), California. As part of the environmental review for the license application in 1996, the FAA issued a Finding of No Significant Impact (FONSI) that adopted the U.S. Air Force's (USAF) 1995 *Final Environmental Assessment for the California Spaceport* (the 1995 EA). The FAA published the FONSI for the 1995 EA in the *Federal Register* on May 2, 1995, and subsequently issued LSO 01-005 to SSI for operation of the California Spaceport. The license was renewed in 2001 and 2006, and expires on September 18, 2011.

FAA/AST and USAF are currently preparing a Supplemental Environmental Assessment (SEA) to the 1995 EA to evaluate the potential environmental impacts of the Proposed Action, where FAA/AST would renew LSO 01-005 to SSI for the continued operation of the California Spaceport. No additional actions (e.g., construction) are part of the Proposed Action. Where the analysis in the 1995 EA remains substantially valid, the SEA will summarize the environmental analysis presented in the 1995 EA. Where the information presented in the 1995 EA is outdated, the SEA will provide updated information on existing conditions and new analysis.

Two items that need to be re-evaluated are the requirements for FAA/AST to consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service (the Services) for potential impacts to species protected under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). As you are aware, the USAF is in the process of formally consulting with the Services to obtain a Programmatic Biological Opinion (PBO) that would include all federally listed species and activities (government or commercial) that occur on VAFB. The USAF is responsible for ensuring

that base activities do not cause significant adverse impacts to federally-listed threatened and endangered species protected by the ESA and marine mammals protected by the MMPA. Because the California Spaceport is located on VAFB, the USAF is responsible for maintaining these commitments. Accordingly, the USAF would ensure that all government and commercial launch activities at VAFB comply with the terms and conditions stated in the forthcoming PBO and the current (and future) Letter of Authorization (LOA) that VAFB operates under for protection of marine mammals under the MMPA. As a result, FAA/AST's action of renewing SSI's Launch Site Operator License for continued operation of the California Spaceport would be covered under the forthcoming PBO and current (and future) LOA.

Additionally, future FAA/AST proposed actions of issuing or renewing Launch-Specific Licenses, Launch Operator Licenses, Launch Site Operator Licenses, or experimental permits at the California Spaceport, would be covered under the PBO and LOA, assuming all aspects of the proposed action (e.g., the proposed number of launches or rocket type) do not exceed the limitations contained in the PBO and LOA. If a future FAA/AST proposed action exceeds the limitations contained in the PBO or LOA, FAA/AST would initiate consultation with the Services, as appropriate. Otherwise, FAA/AST would not find it necessary to consult with the Services prior to issuing or renewing a launch license or Launch Site Operator License regarding potential impacts on federally listed species protected by the ESA or marine mammals protected by the MMPA, as these consultations have (or will be through the forthcoming PBO) already been concluded by the USAF.

We seek your agreement on our determination that FAA/AST's action of renewing LSO 01-005 to SSI for the continued operation of the California Spaceport, as well as future FAA/AST actions of issuing or renewing Launch-Specific Licenses, Launch Operator Licenses, Launch Site Operator Licenses, or experimental permits at the California Spaceport, would comply with section 7 of the Endangered Species Act (per the forthcoming PBO) and the MMPA (per the current and future LOA). As stated previously, such compliance for future proposed actions would only be met if the action does not exceed the limitations in the PBO and LOA.

We respectfully request your response to be provided to Mr. Daniel Czelusniak, Environmental Program Lead, Federal Aviation Administration, by mail at 800 Independence Ave., SW, Room 325, Washington, DC 20591, by e-mail at Daniel.Czelusniak@faa.gov, or phone at (202) 267-5924.

Thank you for your assistance in this matter.

Sincerely,

Mr. Michael McElligott
Manager, Space Transportation Development Division

Cc: Mr. Andy Edwards, USAF, NEPA Project Manager
Mr. Rodney McInnis, NMFS Southwest Regional Office

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Baker, Nicholas

From: Baker, Nicholas
Sent: Monday, August 01, 2011 9:49 AM
To: Baker, Nicholas
Subject: Request regarding California Spaceport License (LSO 01-005)

From: Nic_Huber@fws.gov
To: Jaclyn Johnson/AWA/FAA@FAA
Date: 07/22/2011 01:31 PM
Subject: Request regarding California Spaceport License (LSO 01-005)

Hi Jaclyn,

The FAA requested our determination that the action of renewing LSO 01-005 would comply with section 7 of the ESA per the forthcoming programmatic biological opinion (PBO).

After discussing your letter with Darryl York, Chief of the Conservation Element at Vandenberg, and based on what you and I discussed over the phone yesterday, I believe we can address your request in an email. Because the FWS is in the process of finalizing a PBO, which includes the existing actions at the California Spaceport at Vandenberg Air Force Base, the actions taken at this site, including the renewal of the license, would automatically comply with section 7 of the ESA via the PBO, assuming all aspects of the action do not exceed the limits in the PBO. (As far as I know, the actions are currently within the limits). Therefore, you would not require additional concurrence from the FWS regarding your renewal of the license. While this PBO is not yet signed, we expect it to be within approximately 30 days.

I believe that Andy Edwards, who is your contact at Vandenberg, was/is going to discuss this with you further to determine documentation you may require from the Air Force. If you have any other questions or concerns, please let me know.

Thanks.

Nic Huber
U.S. Fish and Wildlife Service
Ventura Field Office
(805) 644-1766 x 249

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